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WEST TEXAS PECAN NURSERY, SAN SABA, TEXAS 1919 ★

U. S. Department of Agriculture.

Four New Pecan Creations

After years of tedious labor, supported by many years of experience, we now offer for the first time these new creations of Pecans, which are all pure-bred western nuts that originated on our grounds. We have been slow to add them to our catalogue, but now that they have passed from the experimental stage, and their good qualities have become firmly established, we unhesitatingly recommend them as being valuable nuts for commercial purposes and splendid for planting around the home grounds.

With the introduction of the four new ones described below, we are able to reduce the price of "Venus" trees, heretofore \$3, now to \$1.50.

ONLIWON

Do not let this name lead you to the conclusion that this is the only good Pecan. There are many others. The name "Onliwon" was suggested because it is the one nut in which the special good qualities of so many other good nuts are combined. The meat is always plump and full, well flavored, and ripens medium early. The tree makes a beautiful and symmetrical growth, is perfectly healthy and a regular, annual fruiter. In all it is what we class a well-balanced tree. 2- and 3-year-old trees, \$2.50.

SQUIRREL'S DELIGHT

The squirrels are evidently, by nature, judges of good nuts, and when they find these they show special delight. Noticing this same trait in children, we considered naming this nut "Children's Delight," or even "People's Delight," for it pleases all alike. 2- and 3-year-old trees, \$1.25.

WESTERN SCHLEY

As we have said before, there are two families of Pecans, eastern and western. In this nut we have a facsimile of the eastern Schley, *but not so variable*, which is described in all nursery catalogues. 2- and 3-year-old trees, \$1.25.

BANQUET

Although the best of everything is provided for banquets, it costs more to please the eye than the stomach. We find it very much the same with our Pecans. Hence we named our largest and showiest nut, "Banquet." For a more detailed description, see under heading "Tree-Breeding." This variety is yet very scarce. 2- and 3-year-old trees, \$1.50.

We are not in the wholesale business, or growing trees for the trade, but to save time and labor you may select trees to the value of \$30 for \$25; \$60 for \$50; each lot to one address.

"The clean, neat and strong form of the Pecan tree proclaims it the aristocrat among trees, and its long life teaches us the importance of providing pleasures for other generations."

WEST TEXAS PECAN NURSERY, SAN SABA, TEXAS

We have noticed that persons who have admiration for trees invariably have admiration for fine poultry, but have you thought of the corresponding similarity of the Pecan tree to the hen, and how she feeds the tree to pay for her night's lodging? Year in and year out she never misses a payment; for more lasting good we have yet to learn of a better way. Both give their annual crop of fruit, both prepare their nests very much alike, their young hatch out in the spring about the same time. The nuts (eggs) fall to the ground, soon to be followed by the leaves (feathers) to protect and keep them moist till spring opens. Then the cracking (pipping) will commence. In a short time the head of the little baby tree will be sticking out through the leaves (feathers), like a lot of little chickens, and no two will be alike, because of the father of them. The mother tree has already prepared suitable and nourishing food for her little baby tree, by the annual dropping of leaves to decay on the ground. Now as the season advances her leaves (feathers) grow denser and denser on her branches (wings), to protect her young from the burning rays of the summer sun. So we see how trees help to feed and protect their offspring (like the hen) till they are able to rustle for themselves. Anyone who has been stung by the poison oak will readily see the vegetable snake; but not all climbing vines are poisonous, neither are all snakes. The polecat bush, when disturbed, smells worse than the polecat. Barefooted children running into a bed of grass-burs will act very much as though they had run into a bed of red ants. And so we might go on making endless comparisons between life in the vegetable and animal kingdoms.

Tree-Breeding

By E. E. RISIEN

Read before the 28th Annual Meeting of the Texas State Horticultural Society

Much has been written under this heading that is not tree-breeding at all. It now becomes the duty of anyone who has done this work to state a few facts.

Speaking for myself, I will first say that it is astonishing how few people seem to know, or have even given it a thought, that there is male and female in all vegetable life, as with all animal life; or that trees and plants have their age, time and season for breeding very much the same as in animal life; and so little thought is given to the laws of Nature that it is actually news to some that trees sleep, and must have it or they will dwindle and die.

Some of our winters are not cold enough, or long enough, to permit the amount of sleep necessary for them fully to recuperate from the previous tax of our long, hot, dry summers. This often has a bad effect on the fruit, and in some cases makes the trees shorter-lived.

Neither does it take a close observer to notice that some trees sleep longer than others. The common term to this is early and late blooming, and, we will also add, trees and plants all have their likes and dislikes. This is why we find ideal trees growing under ideal conditions.

Tree-breeding, we presume, began with the beginning of creation. The wind and insects must also have been active, carrying the pollen from tree to tree for the purpose of cross-breeding, this being so very essential to retain vigor from generation to generation, for in all breeding do we see this exemplified.

My seedling Pecan orchard of one thousand trees, and all from the one mother tree, a San Saba, furnishes a splendid illustration of tree-breeding done by the wind and insects, using pollen from the nearby inferior trees, just anything and everything, and while these nuts are all good enough for the squirrels and other rodents, to some extent they supply the common market. The wild and crude is fast passing away. The cultured mind and cultivated taste of man will not have them when possible to

WEST TEXAS PECAN NURSERY, SAN SABA, TEXAS

do better. And this is why the Pecan tree is now getting so much attention, and will soon be bred up to that degree of perfection as to make it a joy forever.

My first successful work at tree-breeding was in the union of the two best Paper-shell Pecan trees growing in San Saba county. The nuts of these trees were not large, but had qualities in them I wanted to see blended. This work was done in the early part of May, 1904, and followed by a rain and windstorm that destroyed about two-thirds of the paper bags. However, in the fall I was able to count fifteen nuts for planting. The best nuts are not found near the body of the tree in the protected parts, so I didn't consider these fair samples. These fifteen nuts all germinated and grew. The mother tree of these was San Saba; the father tree, Sloan, growing on Mr. Sloan's land. These fifteen little trees were not long in showing great variations both in growth and in the leaves. Now, to wait on these little baby trees to grow up and fruit naturally, I consider life too short for that, so the next year they were all cut to the ground to get suitable buds for top-working; each one was budded on old trees. By managing them this way possibly eight or ten years was saved in the time of fruiting; anyway, I got to see samples of nuts from the union of these two old trees that were growing twenty-seven miles apart, in five years from planting the seed.

This little crop of nuts was an eye-opener, for they revealed to what extent those two trees bred back to the common wild types, which were mostly in evidence, and that the pollen proved to be the prepotent factor was also plainly shown, both in the character of the trees and nuts. There were several that, for want of a better name, I call false hybrids. These are nuts that never fill, caused presumably from faulty or immature pollen. In fact, I secured only one well-defined cross. This nut is considerably larger and retains all the good qualities of both parents. I have not catalogued it for the simple reason that people are quite foolish about size, and the general market demands large nuts. However, with this partial success, acquiring the knowledge that the pollen is the prepotent factor, and that it doesn't take a whole lifetime to wait on the breeding of Pecan trees, artificially renewed my enthusiasm, so more of this work had to be done.

What I wanted to know most, and what I still want to know most, is the science and art of blending the different varieties to get the best effect and the most efficiency out of the trees. So, keeping these two features in view, my next selection was to again use San Saba for the mother tree and Atwater as the father tree. The Atwater nuts are a very uncommon type, the green husk that covers the nut is the thinnest I have ever seen. Above medium in size, with soft, thin shell, and the bright coloring is not excelled by any; but they are not good keepers. In the San Saba nut we have the other extreme as regards keeping qualities. The union of these two trees resulted very much like my first experiment; they showed up their back ancestry, with some false hybrids, but with only one well-defined cross. In this I secured a prize, a decided improvement on the parentage of either side. The tree has more vigor, the nuts are much larger, and in the coloring they far excel anything in the Pecan line. It was by laying one of these nuts on a pile of common Pecans that suggested the name Venus. But there is one feature that puzzles me—it is in the lateness of ripening, fully a month behind the parentage on either side.

My third experiment was to use Texas Prolific for the mother tree and Atwater for the father tree. I have fruited a great many seedlings of the Texas Prolific fertilized by the winds and insects, all of which have been disappointing, but in fruiting the offspring from the union of these two trees I was to get some prizes and many surprises. The perfect blending, however, I found only in one. It is a beauty and I have named it Banquet. It is very large, immensely prolific, ripens a week earlier than either parent, and retains that bright coloring characteristic of both sides. This alone gives it a distinction from the common herd. In fact, the razor-backed stock may now be

WEST TEXAS PECAN NURSERY, SAN SABA, TEXAS

considered pretty well bred out, and from the nucleus I now have it will take but another generation or two of our well-bred western nuts to invite criticism from the most fastidious.

In these two new creations, Venus and Banquet, we have an unexplained mystery: Why is it that there is a difference of five weeks in the ripening of these nuts? The parentage on both sides ripens the same time, neither early nor late; so we see there is yet lots to learn.

My observation of the eastern and western Pecans convinces me that there are two families of them, and although I have quite a collection of the eastern varieties, so highly lauded, I have made no attempt at crossing them, for I have not yet been able to see how anything is to be gained by doing so.

BREEDING THE TREES

In doing this work artificially it is absolutely necessary to securely tie a paper bag over each cluster of nuts, just as soon as they can be discovered, because at this stage of growth the air is apt to be well impregnated with pollen from the surrounding trees, and in high winds it may visit the trees from miles away and effect its mission. To save the pollen for use artificially we have but to watch the ripening of the catkins or male blossoms; then just as soon as the pollen commences to waste it is ripe. Now strip off the catkins into a paper bag, take them to a warm, dry room, empty on a sheet of paper, spreading them out and in a few hours the paper will be covered with a yellow dust; this is the pollen. It is now an easy matter to separate this clean for use by running it through a fine sieve—a milk-strainer will do. This I put into a pill bottle to use as needed. The vitality of it is good for about a month,—maybe more.

The pistillate or female blossoms that receive this pollen are on the end of each nut. These are small, but plainly seen, and by watching them closely we can soon learn the receptive stage to receive the pollen. They open very much like any other flowers. The pollen may now be dusted on with almost anything,—a small pepper-shaker works very well, though wasteful; or a camel's hair brush, such as comes in a box of water-colors. I use a medicine-dropper, slightly pressing the bulb. This gives just about the right amount for each application. The paper bag should then be tied back and left on for about two days as a further precaution against foreign pollen. After this much time has elapsed, any pollen from another source would not be effective. Such has been my experience.

SEED NUTS

Every year does not furnish them, although the general market may be well supplied with Pecans, and to all practical purposes be just as good as any. But seed nuts for breeding—this is something very different, the importance of which I can better explain by saying that should my cross-breeding work be followed by an unfavorable season, all that time and work are lost. I never plant those nuts, because the climatic conditions, let them be favorable or unfavorable, are all registered on the seed. Now, it may not be necessary to be this particular with short-lived annual crops, such as cotton and corn, but with long-lived trees we think there is actually a saving of time in waiting, and planting only from good normal years. Seed from very old trees or very young trees should not be planted for breeding purposes, but rather in their prime. Neither will it do to plant from trees in which the heart-wood is decaying. The laws of Nature are very exacting; so, in view of this fact, see to it that all imperfections are eliminated as near as possible, and don't forget we must feed as well as breed.